

**Peck Water System (Surface Water) PWS # 2350023  
SOURCE WATER ASSESSMENT FINAL REPORT**

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**March 8, 2001**



**State of Idaho  
Department of Environmental Quality**

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## Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the watershed characteristics.

This report, *Source Water Assessment for Peck Water System, Idaho*, describes the current public drinking water system, the zone boundary of water contribution, and the associated potential contaminant sources located within the boundary. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

There are plans to build a new drinking water facility for the City of Peck. The new plant will be a micro-filtration membrane system. It will achieve at least 4.0 log removal of giardia and cryptosporidium size particles. The membrane modules shall be polypropylene with a 0.2-micron nominal pore size. It will have automatic shut off for high turbidity. Water will be chlorinated prior to piping to new 240,000-gallon glass fused bolted steel reservoir.

However, this assessment should be used as a basis for determining appropriate new protection measures and evaluating the *existing* facility and protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

The Peck Water System drinking water system currently consists of one intake on Big Canyon Creek that flows to a slow sand filter and a small reservoir. Filtered drinking water is then piped to a 30,000 gallon holding tank at the treatment plant where the water is chlorinated prior to distribution. Because of past detections of the contaminates sodium, fluorine, barium, Trihalomethane and nitrate, the large size of the facility's watershed and the vulnerability of surface water intakes in general, Peck's drinking water system is considered to be at high risk of contamination.

For the Peck Water System, source water protection activities should focus on implementation of practices aimed at reducing the effects of bacterial and nitrate sources related to storm water runoff and agricultural lands within the designated source water areas. According to State water quality data, there are two past detections of nitrate. Nitrate contamination is possibly due to agricultural activities up stream of the intake. Most of the designated areas are outside the direct jurisdiction of Peck Water System. Partnerships with state and local agencies and any future development in the source water areas should be established and are critical to success. Due to the fairly short time associated with the movement of surface waters, source water protection activities should be aimed at short-term management strategies with the development of long-term management strategies to counter any future contamination threats. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the Soil and Water Conservation District, the Natural Resources Conservation Service, the U.S. Forest Service and the Idaho Dept. of Lands.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

# SOURCE WATER ASSESSMENT FOR PECK WATER SYSTEM, IDAHO

## Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area, map showing the entire watershed contributing to the delineated area, map showing the twenty-four (24) hour emergency response delineation, and the inventory of significant potential sources of contamination identified within the delineated area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

### Background

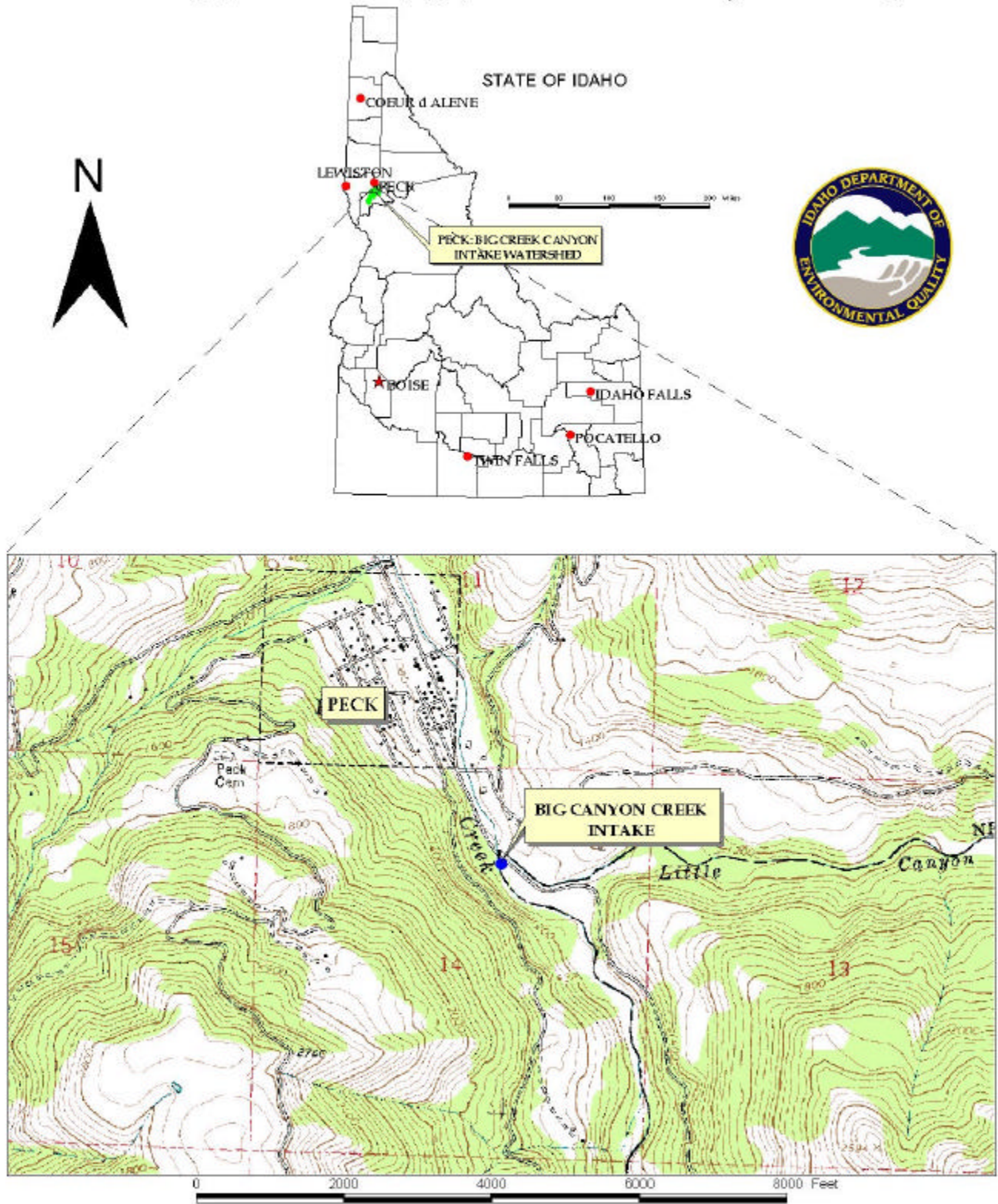
Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

### Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

FIGURE 1. Geographic Location & Topographic Watershed Delineation for Peck Water System



## **Section 2. Conducting the Assessment**

### **General Description of the Source Water Quality**

Peck, Idaho is a community of approximately 210 people, located 12 miles west of Orofino, Idaho (Figure 1). The public drinking water system for the city of Peck is Peck Water System. Peck Water System is comprised of one intake on Big Canyon Creek. The surface drinking water intake watershed includes approximately 15,889 acres or 25 square miles.

The primary water quality issue currently facing Peck Water System is that of contamination caused by agricultural activity and other related potential contamination of Big Canyon Creek and the problems associated with managing this potential contamination.

According to Idaho's State drinking water database, in recent years the City of Peck's drinking water has encountered some minor water quality problems including detection of low levels of the contaminants sodium, fluorine, barium and nitrate. The volatile organic contaminant Trihalomethane has also been detected. Since these contaminants have been detected in samples collected at various water user taps in the City of Peck it is unknown if the contamination is derived from Big Canyon Creek or from water lines below the City's treatment plant. Because of past detections of contaminants, the large size of the facility's watershed and the vulnerability of surface water intakes in general, Peck's drinking water system is considered to be at high risk of contamination.

### **Defining the Zones of Contribution--Delineation**

The Peck Water System is comprised of one intake on Big Canyon Creek. To protect surface water systems from such potential contaminant pathways, the EPA required that the entire drainage basin be delineated upstream from the intake to the hydrologic boundary of the drainage basin (U.S. EPA, 1997b). The delineation process established a physical area around the surface water intake that became the focal point of the assessment. Big Canyon Creek drainage basin consists of approximately 15,889 acres or about 25 square miles. Approximately one half of the land is developed agricultural land and one half is undeveloped-forested land. The process included mapping the boundaries of the zone of contribution into a stream buffer zone that extends from the intake upstream 25 miles along Big Canyon Creek. The stream buffer zone also extends up tributaries to the remainder of the 25-mile boundary. The actual data used by DEQ in determining the source water assessment delineation area are available upon request.

### **Identifying Potential Sources of Contamination**

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within Peck City limits consists of residential homes, small businesses, and light manufacturing. Homes within Peck and homes outside of town operate with individual septic systems. Peck has no wastewater treatment lagoons.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are being used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

### **Contaminant Source Inventory Process**

A contaminant inventory of the study area was conducted during June of 2000. This involved identifying and documenting potential contaminant sources within the Peck Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. A map showing the delineated area with the potential contaminant sources is included (Figure 2).

A groundwater feasibility study was conducted in January 1998. The Imanaha formation is the only known viable aquifer in the area. However, no economically feasible well sites were identified up section of the Imanaha formation. Problems include access concerns, soil slope stability and distance from existing infrastructure.

A total of two specific potential contaminant sites and one ambient non point source have been identified within the delineated source water area (see Table 1). One potential contaminant site is a farm with an underground storage fuel tank and the other potential contaminant site is a gravel pit (Figure 3). There is also a small horse breeding operation immediately upstream of the intake and scattered livestock grazing further upstream. This non-point ambient source is the third item listed in Table 1 below.

**Table 1. Peck Water System Potential Contaminant Inventory**

SITE #	Source Description <sup>1</sup>	Source of Information	Potential Contaminants <sup>2</sup>
1	UST	Database Search	VOC, SOC
2	Mine Site	Database Search	IOC
3	Agriculture	Fertilizers, Pesticides, Sediment	IOC, VOC, SOC

<sup>1</sup>UST = underground storage tank

<sup>2</sup>IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical



### **Section 3. Susceptibility Analyses**

The potential of the source to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity and construction of the intake, land use characteristic, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

#### **Intake Construction**

The construction of the Peck Water System public water system intake directly affects the ability of the intake to protect the source from contaminants. The Peck Water System drinking water system consists of one intake that produces surface water for domestic and industrial uses. The Peck intake construction scored low risk due to the facility's slow sand filtration system.

#### **Potential Contaminant Source and Land Use**

Land use is a major factor in determining the potential contaminant threat to the City of Peck's drinking water system's intake. A total of two specific potential contaminant sites and one ambient non point source have been identified within the delineated source water area (see Table 1). One potential contaminant site is a farm with an underground storage fuel tank and the other potential contaminant site is a gravel pit (Figure 2). The non-point ambient source - agriculture is the third item listed in Table 1 below and is perhaps the most relevant potential contaminant source.



**Table 2. Summary of City of Peck Water System Susceptibility Evaluation<sup>1</sup>**

Intake	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
1	L	L	L	L	H	L (H <sup>2*</sup> )	L (H*)	L (H*)	L (H*)

<sup>1</sup>H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

H<sup>2\*</sup> - Indicates source automatically scored as high susceptibility due to presence of a potential contaminant source (large tracts of agricultural lands) above the surface water.

### Susceptibility Summary

The intake rated in the low category for the inorganic chemical class, low for volatile organic chemicals, and low for synthetic organic chemicals and total coliform (microbial) bacteria. However, the historic detections of low level contaminants, the upstream proximity of agricultural-derived contaminants and the vulnerability of the surface water intake give this system a high risk rating for contamination.

## Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Peck Water System, source water protection activities should focus on environmental education with recreational users, residents, agricultural businesses, local agricultural agencies and other activities within the vicinity of the Canyon Creek watershed. The system may wish to explore possibilities of treatment and distribution upgrades. Due to the relatively short time involved with the movement of surface water, source water protection activities should be aimed at short-term management strategies with an emphasis on dealing with long-term future impacts from these same sources. Source water protection activities should be coordinated with the U.S. Forest Service, Idaho Department of Lands and other agencies with lands and jurisdiction within the delineated source water area.

While the surface water sources possesses adequate quality and yield, limitations and vulnerability related to the construction of the intakes should be reviewed. An investigation of the feasibility of a shift to potential ground water sources to augment or replace the current surface water system should be considered.



## **Assistance**

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office      (208) 799-4370

State DEQ Office      (208) 373-0502

Website: <http://www2.state.id.us/deq>

## References Cited

EPA (U.S. Environmental Protection Agency), 1997, State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Sources of Drinking Water, EPA 816-R-97-008, 40p.

U.S. Government Printing Office, 1995, Code of Federal Regulations, 40 CFR 112, Appendix C-III, Calculation of the Planning Distance

Idaho DEQ, Nov., 2000, State of Idaho, Information Management System (DWIMS).

Attachment A

Peck Water System  
Susceptibility Analysis  
Worksheet

The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

> 16 High Susceptibility

# Surface Water Susceptibility Report

Public Water System Name : PECK WATER SYSTEM

Source: BIG CANYON CK

Public Water System Number 2350023

12/04/2000 11:48:55 AM

## 1. System Construction

SCORE

Intake structure properly constructred

NO

1

Infiltration gallery or well  
under the direct influence of Surface Water

YES

2

Total System Construction Score

3

## 2. Potential Contaminant Source / Land Use

IOC  
Score

VOC  
Score

SOC  
Score

Microbial  
Score

Predominant land use type (land use or cover)

IRRIGATED CROPLAND

2

2

2

2

Farm chemical use high

NO

0

0

0

0

Significant contaminant sources \*

YES

Agriculture derived Nitrate

Sources of class II or III contaminants or microbials present within the 500' of the intake and the

0

0

0

0

Agricultural lands within 500 feet

YES  
25 to 50% Irrigated Agriculture

2

2

2

2

Three or more contaminant sources

NO

0

0

0

0

Sources of turbidity in the watershed

YES

1

1

1

1

Total Potential Contaminant Source / Land Use Score

5

5

5

5

## 3. Final Susceptibility Source Score

8

8

8

8

## 4. Final Source Ranking

Moderate

Moderate

Moderate

Moderate

\* Special consideration due to significant contaminant sources and vulnerability of intake  
Source is considered High Susceptibility